

C. REMARKS

Applicants respectfully request reconsideration of the outstanding rejections and reexamination of the present application in light of the following amendments and remarks.

Status of the Claims & Statement Regarding Claim Amendments and Cancellations

Claims 1, 5, 6, and 11 are currently pending in the application. Claims 2-4, 7-10, and 12-34 are currently canceled. Claims 1 and 5 are currently amended.

Amended Claims Overcome Previous Rejections

The Final Office Action rejects claims 1, 5, 6, and 11 under 35 U.S.C. 103(a) as being unpatentable over Werme (US Patent 7,171,654) in view of Sankaranarayan (US Patent 6,799,208) and further in view of Ozzie et al. (US Patent 6,640,241). [Final Office Action, p. 2] Applicants amend independent claim 1 to clearly show that claim 1, and therefore also dependent claims 5, 6, and 11, are not obvious under Werme in view of Sankaranarayan and Ozzie and traverse the rejection of these claims in view of the Final Office Action.

Claim 1

As to claim 1, the claim currently reads:

Claim 1 (Currently Amended): A method for maintaining application operations within a suboptimal grid environment, comprising:

enabling a grid environment comprising a plurality of computing systems each comprising at least one resource comprising at least one operating system, at least one processor, at least one file system, at least one database manager and at least one memory manager and communicatively connected over a network through a grid management system to share each said at least one resource through a plurality of web services comprising simple object access protocol, web services description language, and extensible mark-up language interfaces implemented within at least one web service layer extended by an open

grid services infrastructure atop at least one grid service layer implemented within an open grid services architecture;

receiving a plurality of separate jobs from a plurality of client systems over said network at said grid management system;

accessing, by said grid management system, a profile stored as a document type definition of an extensible markup language expression for an application from among a plurality of applications triggered by a particular job from a grid application profiles database specifying a selection of at least one web service from among said plurality of web services and at least one grid service within said grid services layer required by said application;

querying, by the grid management system, a plurality of separate business grid management systems to determine which of said separate business grid management systems manages at least one resource node from among a plurality of resource nodes of said grid environment comprising said at least one resource, wherein said at least one resource node further comprises said at least one grid service required for said application in said profile and a price for each said at least one resource node;

managing distribution from said grid management system of each of said plurality of separate jobs to a separate selection of said at least one resource with said particular job submitted to at least one resource node from among a selection of said plurality of resource nodes returning availability to handle said particular job at a selected price;

submitting by said grid management system [[an]] said application from among a plurality of applications to said at least one resource node at least one resource node comprising at least one of said at least one resource from among a plurality of resource nodes comprising at least one of said at least one resource within said grid environment, wherein each of said plurality of separate jobs requests at least one of said plurality of applications;

monitoring by said grid management system a performance status of said at least one resource node running said application according to said profile;

comparing by said grid management system said performance status with an operational requirement specified in [[a]] said profile for said application for when said application is operating at said at least one resource node;

responsive to said performance status not meeting said operational requirement,

determining by said grid management system whether there is at least one other resource node from among said plurality of resource nodes within said grid environment that meets said operational requirement

specified in said profile for said application for when said application is operating at said at least one other resource node;

responsive to determining there is said at least one other resource node that meets said operational requirement specified in said profile, relocating by said grid management system said application to said at least one other resource node within said grid environment;

responsive to determining there is not said at least one other resource node that meets said operational requirements specified in said profile, determining by said grid management system from said profile at least one module to first shutdown from among a plurality of modules of said application defined in said profile, wherein each of said plurality of modules is assigned a separate resource size requirement and a separate priority to be shut down in said profile;

responsive to determining from said profile said at least one module to first shutdown, sending an extensible markup language [[XML]] message by said grid management system to said at least one resource node authorizing said at least one resource node to shutdown said at least one module, such that said application continues to operate with a portion of said plurality of modules when said performance status fails to meet said operational requirement in said profile.

First, Applicants respectfully assert that no new matter is added through the amendments to the claims. The specification of the present application teaches the amended elements of comprising at least one operating system, at least one processor, at least one file system, at least one database manager and at least one memory manager within paragraph 0048, a plurality of web services comprising simple object access protocol, web services description language, and extensible mark-up language interfaces implemented within at least one web service layer extended by an open grid services infrastructure atop at least one grid service layer implemented within an open grid services architecture within paragraph 0049, accessing, by said grid management system, a profile stored as a document type definition of an extensible markup language expression for an application from among a plurality of applications triggered by a particular job from a grid application profiles database specifying a selection of at least one web service from among said plurality of web services and at least one grid service within said grid services layer required by said application within paragraphs 0050, 0056, 0062, and 0073, querying, by the grid management system, a plurality of

separate business grid management systems to determine which of said separate business grid management systems manages at least one resource node from among a plurality of resource nodes of said grid environment comprising said at least one resource, wherein said at least one resource node further comprises said at least one grid service required for said application in said profile and a price for each said at least one resource node, within paragraphs 0064, and managing distribution from said grid management system of each of said plurality of separate jobs to a separate selection of said at least one resource with said particular job submitted to at least one resource node from among a selection of said plurality of resource nodes returning availability to handle said particular job at a selected price within paragraphs 0064, 0065, and 0066.

In view of the supportive teachings for each of the claimed elements, Applicants respectfully request entry and allowance of the pending claims.

Second, Applicants respectfully submit that claim 1 as amended is not obvious under *Werme* in view of *Sankaranarayan* and *Ozzie*. As noted in the Office Action, under 35 USC §103(a) a patent may not be obtained though the invention is not identically disclosed as described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. In *Graham v. John Deere*, the Supreme Court clarified that "under 103, in considering the obviousness or nonobviousness of the subject matter, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved, in addition to evaluating evidence of secondary considerations." *Graham*, 383 U.S. 1, 148 USPQ 459 (1966). Applicants traverse the rejection of claim 1 in view of the amendments. Applicants respectfully assert that regardless of whether the rejection of claim 1 was correct, claim 1 as amended is not obvious under the prior art and should be allowed.

a plurality of web services comprising simple object access protocol, web services description language, and extensible mark-up language interfaces implemented within at least one web service layer extended by an open grid services infrastructure atop at least one grid service layer implemented within an open grid services architecture

In a Graham analysis, as to the scope and contents of Werme with regard to the previously claimed element of “enabling a grid environment comprising a plurality of computing systems each comprising at least one resource and communicatively connected over a network through a grid management system to share each said at least one resource through at least one web service layer atop at least one grid service layer implemented within an open grid services architecture”, the Final Office Action cites column 5, lines 33-50, table in column 5, section REMOS, and column 11, lines 18-22 of Werme as reading on this element. Col. 5, lines 33-50 of Werme describe a “Resource Management Architecture”. [Final Office Action, pp. 2, 3] Lines 38-40 of Werme state that “it will be appreciated that the hardware configuration illustrated in FIGS. 1A and 1B constitutes a so-called grid system.” The REMOS of Werme describes a Resource Monitoring System as a “network bandwidth and topology monitoring system developed under DARPA sponsorship by CMU. Remos allows network aware applications to obtain relevant information about their execution environment.” REMOS describes that it provides an API and classes of queries. Col. 11, lines 18-22 of Werme describe History servers which can be used to provide survivability or load sharing.

As to the differences between claim 1 as previously presented, and Werme, it is clear that Werme does not teach a web service layer or a grid service layer implemented within an open grid services architecture. Werme’s description of a “resource management architecture” or a general reference to a “so called grid system” is insufficient to teach grid services implemented within an open grid services architecture. To the extent the term “open grid services architecture” in the claim is broadly interpreted, Applicants respectfully submit that a proper interpretation of the term in view of paragraph 0050 of the specification specifies “open grid services

architecture” or OGSA as a uniform standard. In addition, Applicants respectfully note that the Examiner does not identify with any particularity what elements of Werme read on the web services layer versus the elements of Werme that read on the grid services layer, and Werme does not make a distinction between a web services layer and a grid services layer.

In view of the gap between the teachings of the prior art and claim 1 prior to amendment, Applicants respectfully submit that there is no rationale for one of ordinary skill in the art to find claim 1 as a whole obvious in view of the differences between Werme and claim 1.

In addition, however, regardless of the previous lack of obviousness, Applicants note that claim 1 is further amended to clarify that the grid management system controls sharing of resources through a plurality of web services comprising simple object access protocol, web services description language, and extensible mark-up language interfaces implemented within at least one web service layer extended by an open grid services infrastructure atop at least one grid service layer implemented within an open grid services architecture.

Thus, in performing a second step of a Graham analysis, regardless of whether the previous assertions were correct, the difference between claim 1 and Werme now is that Werme’s general “grid system” reference clearly does not teach the claimed web services include simple object access protocol, web services description language, and extensible mark-up language interfaces implemented within a web services layer that is extended and Werme’s general “grid system” reference does teach the web services layer extended by an open grid services infrastructure atop a grid services layer. In particular, Applicants note that paragraph 0049 of the specification of the present application teaches the open grid service infrastructure as a standard to enable interoperation between web services and grid services implemented with an open grid services architecture.

In view of the gap between the teachings of the prior art and claim 1 as amended, Applicants respectfully submit that there is no rationale for one of ordinary

skill in the art to find claim 1 as a whole obvious in view of the differences between Werme and claim 1.

accessing, by said grid management system, a profile stored as a document type definition of an extensible markup language expression for an application from among a plurality of applications triggered by a particular job from a grid application profiles database specifying a selection of at least one web service from among said plurality of web services and at least one grid service within said grid services layer required by said application;

querying, by the grid management system, a plurality of separate business grid management systems to determine which of said separate business grid management systems manages at least one resource node from among a plurality of resource nodes of said grid environment comprising said at least one resource, wherein said at least one resource node further comprises said at least one grid service required for said application in said profile and a price for each said at least one resource node;

Applicants respectfully submit that as to the scope and contents of Werme, Sankaranarayan and Ozzie, the newly presented elements of accessing, by said grid management system, a profile stored as a document type definition of an extensible markup language expression for an application from among a plurality of applications triggered by a particular job from a grid application profiles database specifying a selection of at least one web service from among said plurality of web services and at least one grid service within said grid services layer required by said application and querying, by the grid management system, a plurality of separate business grid management systems to determine which of said separate business grid management systems manages at least one resource node from among a plurality of resource nodes of said grid environment comprising said at least one resource, wherein said at least one resource node further comprises said at least one grid service required for said application in said profile and a price for each said at least one resource node, are not taught in these references. In particular, in noting the differences between the prior art and claim 1, as amended, Applicants note that even if the web service and grid service are broadly interpreted without reference to the OGS1 and OGSA standards taught in claim 1, none of Werme, Sankaranarayan or Ozzie teaches accessing a profile for an

application to be placed on a resource node, where the profile separate specifies both a web service and a grid service required for the application. Moreover, none of the cited prior art teaches querying resource nodes to determine which resource node can provide the required resources for a job and the grid services and web services required by an application to be placed on the resource node for the job.

In view of the gap between the teachings of the prior art and claim 1 as amended, Applicants respectfully submit that there is no rationale for one of ordinary skill in the art to find claim 1 as a whole obvious in view of the differences between Werme, Sankaranarayan, Ozzie and claim 1.

Claims 5, 6, and 11

Applicants respectfully assert that because claim 1 is not anticipated under 35 USC 102(e) or obvious under 35 USC 103(a) in view of the prior art, claims 5, 6, and 11 which depend on claim 1 are also nonobvious and should be allowed. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

In addition, Applicants note that claim 5 is amended to maintain antecedent basis in view of the amendments to claim 1. In addition, paragraphs 0080, 0083, and 0085 of the present application support the teachings in each of the amended elements of claim 5, such that no new matter is added through the amendments to the claim.

Additional Information which may be Material to Patentability

Applicants respectfully direct the Examiner's attention to several matters regarding information which may be material to patentability in the present application.

Applicants note that the present application cites an application which is co-pending with the present application, which is incorporated by reference into the present application. As noted in the amendments to the specification, Applicants clarify that this applications to which the present application is cross-referenced, include US Patent Application Serial No. 10/757,270. Applicants note Patent Application serial nos. 10/756,138 and 10/756,134 may also be considered related applications that are co-

pending with the present application, and Applicants therefore fulfill the duty of candor and good faith in dealing with the Office to disclose information with Applicants' knowledge as to other co-pending application, including material rejections in co-pending applications, as described in 37 CFR 1.56 and recently clarified in *McKesson Information Solutions, Inc. v. Bridge Medical, Inc.*, 487 F.3d 897, 82 USPQ2d 1865 (May 18, 2007).

Applicants received a Notice of Allowance in 10/757,270 from Examiner Djenane M. Bayard, dated 08/04/2008. In addition, Applicants received a Final Office Action in 10/756,138 from Examiner Tariq Najee-Ullah, dated 06/05/2008 and Applicants filed an Appeal Brief, dated 11/05/2008. Applicants have not received a Notice of Allowance in 10/756,134, which issued on 07/09/2008.

Conclusion

Applicants note the citation of pertinent prior art cited by the Examiner.

In view of the foregoing, withdrawal of the rejections and the allowance of the current pending claims is respectfully requested. If the Examiner feels that the pending claims could be allowed with minor changes, the Examiner is invited to telephone the undersigned to discuss an Examiner's Amendment.

No extension of time is believed to be necessary. If, however, an extension of time is required, the undersigned hereby authorizes the Commissioner to charge any fees for this extension to IBM Corporation Deposit Account No. 09-0447.

Respectfully submitted,

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